**Homework Assignment #1**

1. Define the following vocabulary terms in the vocab section of the packet:  *atom, atomic theory, law of conservation of mass.*
2. What is the similarity between Democritus’ ideas about the atom with that of Dalton?

Democritus’ theory just stated that atoms were the smallest particles of matter and that different substances were made of different atoms. Dalton said the same things and a few additional things, which were:

1. What are the major points in Dalton’s atomic theory?

* Matter is made of tiny indivisible particles called atoms
* Atoms of the same element are identical Atoms cannot be created, destroyed or divided into smaller particles
* Different atoms combine in whole number ratios to form compounds
* In a chemical reaction atoms are separated, combined or rearranged

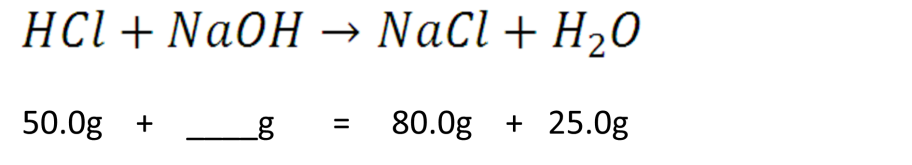
1. Which parts of Dalton’s atomic theory are no longer valid? Explain.

* Matter is made of tiny indivisible particles called atoms
  + Atoms are made of smaller particles such as protons, neutrons, and electrons
  + Atoms can be split (nuclear fission)
* Atoms of the same element are identical
  + not true because isotopes were discovered. Isotopes of the same element contain different numbers of neutrons.

1. What was Lavoisier’s contribution to the development of the modern atomic theory?

Lavoisier established the Law of Conservation of Mass which states that mass can neither be created or destroyed in a chemical reaction.

1. According to the Law of Conservation of Mass, what mass of NaOH would have been used in the following chemical reaction?



55.0

1. How is Dalton’s model of the atom different from Thomson’s Model?

Dalton’s model is called the “hard sphere” model. In Dalton’s model there are no subatomic particles. In Thomson’s “Plum Pudding” model, electrons are scattered throughout the atom which was described as a positively charged sphere.